

# NEW RECORD OF SIX MARINE FISHES FROM ST. MARTIN'S CORAL ISLAND, BAY OF BENGAL, IN BANGLADESH<sup>1</sup>

MOHAMMAD ALI REZA KHAN<sup>2</sup>

**Key words:** *Acanthus fuliginosus*, *Apogon endekataenia*, *Choreodon robustum*, *Halichoeres javanicus*, *Sargocentron rubrum*, *Thalassoma lunare*, St. Martin's Coral Island, Bangladesh.

This paper deals with 10 species of marine, coral-associated bony fishes from the lone coral island in the eastern part of the Bay of Bengal. Six of these are reported from the country for the first time. Their ecology and utilisation have also been discussed.

## INTRODUCTION

Bangladesh is a country of rivers, rivulets, marshes, estuaries, islands and long coastal belts. Nearly 250 species of freshwater and 475 species of marine fishes, including some 50 species of cartilaginous fishes (Hussain 1970, Rahman 1989 and Khan *et al.* 1995) have been recorded in its waters. Bangladesh is heavily dependent on the supply of marine fish to feed its own population and the export industry of non-traditional items. Ichthyologists of Bangladesh started studying its fish resources in the early nineteen fifties (Ahmad 1953) when the country was known as East Pakistan. These old records of the Pakistan era and the work done during the current decade, for some reason, do not include most of the fishes that live among the corals of Bangladesh. It is apparent from the existing literature and from my own field observations that nearly 200 species of marine fish, including 12 cartilaginous species are landed in the fish market of St. Martin's Coral Island. Most of these are traditionally commercial fishes that are being used for human consumption at home or abroad and for making fish meal. Even this list does not include species such as *Acanthus fuliginosus*, *Apogon endekataenia*, *Choreodon*

*robustum*, *Halichoeres javanicus*, *H. marginatus*, *Kyphosus cinerascens*, *Lutjanus lutjanus*, *Sargocentron rubrum* and *Thalassoma lunare*. The status of several other species also appears to be uncertain.

In this paper I have attempted to provide first hand information on the ecology of six species of fishes that inhabit the coral reefs of Bangladesh. However, it seems all these species have already been reported from other parts of the Bay of Bengal but Bangladesh (Chhapgar 1989, Day 1878, Misra 1959, Munro 1955).

## STUDY AREA AND METHODOLOGY

Of the several hundred offshore and inshore islands in Bangladesh, one alone is apparently formed of boulders and ringed by corals (Khan 1964, Khan 1982). This is the St. Martin's Coral Island that is locally known as Narikel Jinjira. Located beyond the southeasternmost tip of Bangladesh and opposite the Myanmar coast of Akyab, St. Martin's Coral Island is tiny, 8 sq. km in expanse. It is dominated by coconut trees and lies between 20° 30' - 20° 39' N and 92° 18' - 92° 21' E. The Coral Island is formed of a large main island and three separated islets. The main island has three distinct human habitations under a village system known as Uttar Para (northern village), Maddhya Para (middle village) and Dakshin Para (southern village). The three southernmost islands are collectively known as

<sup>1</sup>Accepted June, 1997.

<sup>2</sup>Nature Conservation Movement, GPO Box-3413, Dhaka-1000, Bangladesh.

Present Address: Dubai Zoo, P.O. Box 67 Dubai, United Arab Emirates.



Siradia (meaning separated islands), covering another square kilometre or so (Khan 1985). The latter is connected to the southeasternmost corner of the main island only during ebb tide. Coral Island is a sedimentary continental island and its main portion is dumbbell-shaped because of two saucer-like underground base rocks (Choudhury 1985).

A border river, called Naaf, runs through the international boundary of Bangladesh and Myanmar. It ends in the Bay of Bengal. At this meeting point, on one side is the last landmass of Bangladesh, the Badarmukam and Maungdu, the last corner of the Akyab coast of Myanmar. A 12 km wide channel of the Bay of Bengal separates Coral Island from both the countries.

The island has been inhabited since 1850 and at present there are about 600 families with 4000 people. Almost all the islanders are fishermen. Their fishing activities are limited from October to April, which is the period of fair weather. The remaining period of the year is usually too windy, rainy or cyclonic, so that the islanders do not dare to venture out in the Bay. All administrative, social and economic activities of the islanders are restricted to Uttar Para (Khan, 1998).

During the SW monsoon, communication with Coral Island and the nearest Bangladesh border-town of Teknaf remains disrupted for an appreciable period. Rarely do any outsiders visit the island at such a period. Some islanders practice agriculture following monsoon showers. Others remain engaged in tending the coconut gardens, making new fishing nets or repairing old ones and catching fish from nearby areas during the monsoon (Khan, 1998).

I started visiting Coral Island from 1980 and to date have paid over a dozen visits, each lasting two to seven days. All my visits except one to the island were during the season of fair weather. In 1994 two nature lovers from Dhaka (Bangladesh) and I visited the island in July amidst bad weather conditions. We again went to the island in December-January 1994-95 but

failed to visit it in August 1995 and July-August 1996 due to inclement weather conditions. My last visit to the island was for three days in November 1996.

During my sojourn on the island I normally walked across the island, sometimes following the coastline and occasionally criss-crossing the main island. In the process I noted wildlife of the island by visual observations, checking fish catch of the islanders and taking note of the fishes that land on the makeshift fish market of the island at Uttar Para. I tried to keep photographic records of both the plants and animals on the island.

At the time of our visit in July 1994, we came across half a dozen teenaged anglers returning from an angling trip from Siradia. Also several villagers were engaged in fishing among the boulders in Dakshin Para with their cast nets. Their catch included several species of fish that looked unfamiliar to me, so I photographed them. Later on, we also tried watching the fishes in their natural surroundings. The measurements of the specimens were deduced from the photographs. The species list was forwarded to several ichthyologists in Bangladesh and only one replied with definite suggestions (Kader, pers. comm.). The species identification was aided by the fisheries experts at the Marine Fisheries Resources Center at Umm-al-Qawain, U.A.E. Several guide books were used to identify the fishes (Anon. 1977, 1982, 1986; Carasson 1977, Chhapgar 1989, Day 1878, Grant 1985, Madsen 1975, Masuda *et al.* 1984, Munro 1955, Randal *et al.* 1978, Sirimontaporn 1984). Names of the fishes mostly follow those given in Carasson (1977) and Munro (1955).

#### RESULTS AND DISCUSSION

We took nearly 25 photographs, covering 10 species of the marine fishes of St. Martin's Coral Island. Six species had not been reported from the coastal waters of Bangladesh part of the Bay of Bengal (Gafur 1976, Hussain 1970, Khan *et al.* 1995, Rahman 1989, Quddus and Shafi



1983). At least four other species that had been considered earlier as rare or uncommon were also found in Coral Island. Descriptions and ecological notes on all 10 species of fishes are given below:

**1. Red Soldier or Crimson Squirrel Fish:** *Sargocentron rubrum* (Forsk.) (= *Holocentrum rubrum* Bleeker 1877), Fam. Holocentridae: A red fish with 8 silvery white longitudinal bands and three white vertical bands behind the eye, covering both the preopercle and opercle. All fins and head are also reddish. The short snout is pointed while the eyes are very large. The tail is forked with two lighter portions bordered marginally and centrally by darker lines. The specimen was about 14 cm, while the maximum recorded length is 20 cm (Day 1878). It was caught by cast net from the rocky intertidal zone in Dakshin Para. Not a common species.

**2. Eleven-banded Cardinal Fish:** *Apogon endekataenia* Bleeker. Fam. Apogonidae: A small, colourful coastal fish with pronounced eyes, appreciably long peduncle and a black blotch at the base of the tail. There are at least 10 longitudinal bands, half of which are reddish-brown and others are lightly coloured. One dark and broad band starts at the snout, passes over the eyes and the body, ending at the notch of the forked tail. Lateral line is prominent. Ventral fin short and does not reach the anal fin. All fins are reddish-brown. Two specimens measured 8 cm and 9 cm. Rather uncommon among the coral and other boulders. Caught by cast net from the intertidal region of Dakshin Para.

**3. Sword-Lipped Wrasse:** *Choerodon robustum* (Gunther) (= *Xiphocheilus robustus*). Fam. Labridae: This fish attracted my attention as it resembled the parrot fish we see regularly in Dubai market. Both the upper and lower jaws are equipped with tusk-like teeth, hence the other name **Red Tusk Fish**. The fish when dead was red and faded red with white jaws and tusks, and reddish fins. The eyes were also red, with yellow iris. The tusked teeth are meant to cut out corals for eating. The specimen measured c. 24 cm. It lives along the rocky shore of Coral Island.

Uncommon. Caught by the villagers using a cast net from the boulder strewn areas of western side of Dakshin Para.

**4. Moon or Green Wrasse:** *Thalassoma lunare* (Linnaeus). Fam. Labridae: Quite a colourful fish. The body is lanceolate and laterally compressed, with continuous dorsal and anal fins that are longitudinally banded black, red and blue. The greenish-yellow body, reddish head and operculum traversed by blue stripes and blue, red and yellow tail look vivid. The tail is forked, both ends of which extend so far backwards that the centre takes the shape of a U or half-crescent, that is yellowish. The name 'moon' wrasse has been derived from this shape of the tail. It lives among sand or coral stones and base rocks. Some are also present in the live corals. The fish was about 18 cm long. Caught by anglers from the rocky intertidal zone in Siradia.

**5. Javan Wrasse or Rainbow Fish:** *Halichoeres javanicus* (Bleeker). Fam. Labridae: Less colourful than the sword-lipped wrasse but looks reddish brown from snout to tail with lots of green, while the chin, throat and abdomen are white. Teeth more or less similar to the sword-lipped wrasse, but much smaller. There is a prominent black spot at the base of the orangish pectoral fin and orangish markings over the head, nape and cheek (opercles) are prominent. Both the dorsal and anal fins are variously marked over the basic green colour. There is a distinct black spot or ocellus between the base of the 5th and 7th (out of 9) dorsal spines. Eyes red with bluish rings. Tail rounded. The specimen measured c. 12 cm and was caught by anglers from Siradia.

**6. White-tailed or Red-tailed Surgeon Fish:** *Acanthurus fuliginosus* Lesson (= *Acanthus matoides*, *A. xanthopternus*). Fam. Acanthuridae: A grey-brown oval shaped coastal fish with a short but tubular mouth. The pectoral fin is partly yellow and the forked tail base is marked by a broad white band. Both the dorsal and anal fins have longitudinal, dark, bluish bands. From behind the pectoral fin to the peduncle the body is marked with bluish striations. An oblique



yellow band in front of the eye and a slight depression over it are clearly visible. There is a single spine over the peduncle. It was caught by cast net from the rocky areas and measured 21 cm. Not a common fish.

The following species (7-10.) are rather uncommon in our waters. They are not traditionally caught in the fishing gear but by cast nets or caught by anglers. They are apparently more common in the rocky near-shore and coral bearing areas of Coral Island than in the open sea.

**7. Rosy Snapper:** *Lutjanus lutjanus* Bloch, Fam. Lutjanidae: It is the nominate race for the genus and was founded by Bloch in 1790. The name seems appropriate as the sides of the body of the fish have rosy to reddish lines each of which is separated from the next by a lighter one. Red lines also criss-cross the area ahead of, behind and under the prominently white eyes and extend up to the opercles. Those over the lateral line are rather oblique, almost up to the base of the soft portion of the dorsal fin, and then become straight till the end of the soft fin. Back olivaceous. The forked tail is dark with light red border. Upper canine teeth are prominent and the fish had no ocellus or black spot over the body. The specimen measured about 13 cm and was caught by cast net. An uncommon species. Khan *et al.* (1995) have reported it for the first time from Bangladesh.

**8. Ashen Drummer** *Kyphosus cinerascens* (Forsk.) Fam. Kyphosidae (Sparidae): A silvery grey, perch-like, rock-dwelling coastal fish with an elongated caudal peduncle, dark eyes and fins, whitish bands over the preopercle and opercle. The snout is short and dark. Interorbital area, opercle and preopercle covered by smaller scales. The specimen was caught by anglers from the rocky intertidal zone. It was *c.* 22 cm long and Hussain (1970) reported the species for the first time from Bangladesh.

**9. Two-eyed Wrasse or Speckled Rainbow Fish:** *Halichoeres marginatus*. Fam. Labridae: This is another colourful marine fish

that abounds in the rocky shores of St. Martin's Coral Island. It is laterally compressed and rather pear-shaped. The colour of the specimen on my palm was dominated by black and blue. The most distinctive feature seemed to be the yellow patch on the blue-black pectoral fin. Each scale on the body had a dark patch, which over the back, shoulder and head formed continuous and organised lines or streaks. The continuous dorsal and anal fins had blue-edged marks. The tail was rather rounded and variously coloured. Eyes greenish-blue. The specimen caught by the anglers resembled the description of the type specimen more than the one collected from the Andamans and illustrated by Day (1878). It measured *c.* 16 cm. Hussain (1970) is possibly the first to report it from Bangladesh.

**10. Zebra or Blue Angelfish:** *Pomacanthodes semicirculatus* (Cuvier). Fam. Pomacanthidae. The specimen is a juvenile caught from the tiny pools formed in the rocky intertidal region of Siradia. It is bluish-black with prominent white, broad bands alternating with blue ones, peduncle banded but tail bandless and almost whitish. The posterior white bands end in the anal and dorsal fins. Body shape deep as in other angelfish and measured 4.7 cm. A second specimen was 2.4 cm. They were caught by children with the help of a cloth net. This species is uncommon, but a second species **Ringed Emperor Angelfish** (*P. annularis*) is common around the island. Hussain (1970) at first considered the former as uncommon but later as common. Adults of these fishes may be present in deeper water while the fingerlings seem to prefer the rocky intertidal region.

In addition to the above, I had also noted a couple of species of Blenny in the rocky and coral pools at Uttar Para, Dakshin Para and Siradia. I do not think that this has yet been reported from the country.

Some of the people of Coral island are traditionally not fishermen but farmers or farm labourers. They generally fish with cast nets and other smaller fishing gear. Their daily fish catch



rarely exceeds 2 kg, barely sufficient for the daily requirement of a family of five or six. Teenagers also go fishing with rod and line to bring in sustenance level food for their families. To reach Siradia they walk nearly 16 km to and fro. These two groups of islanders generally do not sell their catch in the market but keep it for home consumption. Such fishing is more prevalent during the monsoon when inclement weather compels the people to remain indoors, making them jobless. The fish usually caught through these non-traditional methods and on non-commercial basis provide subsistence to the poorer section of the population of Coral Island. Therefore, to better the economic conditions of the local people, this non-traditional fishing is quite important and needs to be encouraged. As far as the marine fishes of Bangladesh are concerned, there is only one paper by Hussain (1970) that provides a complete list. This even includes certain genera without mentioning species that are likely to be present in Bangladesh. Six species of fish recorded here find no mention in his work or those of Khan *et al.* (1995), Rahman (1989) and Quddus and Shafi (1983).

I believe that, in the past, both earlier and recent fish experts in Bangladesh depended almost entirely on the fish samples caught in their research vessels or on the samples collected from the market for preparing their lists of fishes of the country. So species that abound in the rocky shores and live in coral beds of Coral Island were possibly missed, simply because these did not appear in the fish markets.

Further investigations are needed to get an

overview of the marine fishes of St. Martin's Coral Island of Bangladesh. Scuba diving may also reveal new records of fish and invertebrate species. It may also highlight the abundance of fish species preferring the rocky and coral areas. This is a new avenue for fishery experts of Bangladesh, which they may venture into in the immediate future.

#### ACKNOWLEDGEMENTS

I thank to Messrs. Shigeysu Tamaei, Japanese International Cooperation Agency's fish expert, Mohammad Abdul Razzak (former Director) and Mohammad Abdel Rahim Hassan al Zarouni, Director, Marine Resources Research Centre, UAQ, UAE, for helping me in identifying the fishes from photographs and allowing me to use their reference books. I thank Prof. Mohd. Abdul Kader, Institute of Marine Fisheries and Dr. Mohammad Farid Ahsan, Associate Professor of Zoology, Chittagong University, Chittagong for identifications; Messrs. M. M. Hussain, former Chairman, Fisheries Development Corporation and A.K. Aatur Rahman, former Director General, Directorate of Fisheries, Government of Bangladesh, Dhaka for literature; Mohammad Anisuzzaman Khan, Director, Nature Conservation Movement, Dhaka, for accompanying me on my field trips to the Coral Island, and Abul Kasem Master of St. Martin's Coral Island for his hospitality and guidance. My gratitude to my wife Nururn Nahar needs special mention as she had not only led a "widowed life" during my sojourn at the island but also generously financed my trips.

#### REFERENCES

- AHMAD, N. (1953): Fish fauna of East Pakistan. *Pak. Journ. Science, Lahore*. 5(1): 18-24.
- ANONYMOUS (1977): Simon & Schuster's Guide to Freshwater and Marine Aquarium Fishes. A Fireside Book: Simon and Schuster Inc., New York.
- ANONYMOUS (1982): A Colour Guide to the Fishes of the South China Sea and the Andaman Sea. Primary Production Department, SEAFDEC, Singapore.
- ANONYMOUS (1986): Fishes of the Sultanate of Oman. Ministry of Agriculture and Fisheries Resources, Muscat, Oman.
- CARASSON, R.H. (1977): Field Guide to the Coral Reef Fishes of the Indian and West Pacific Oceans. William Collins Sons Co. Ltd., U.K.

- CHHAPGAR, B.F. (1989): Common Fishes of India. World Wide Fund for Nature-India, Bombay.
- CHOUDHURY, M.I. (1985): Probal Deep (in Bengali meaning coral island). Bangla Academy, Dhaka, Bangladesh.
- DAY, F. (1878): The Fishes of India: being a Natural History of Fishes known to inhabit the Seas and Freshwaters of India, Burma and Ceylon. Vol 1 & 2. Reprint Edition, 1994 Jagminder Book Agency, New Delhi.
- GOFUR, A. (1976): The Ichthyofauna of the Karnaphully Estuary (Chittagong, Bangladesh). M.Sc. Thesis (unpubl.), Institute of Marine Sciences, Chittagong University, Bangladesh.
- GRANT, E.M. (1985): Guide to Fishes. Department of Harbours and Marine, Australia.
- HUSSAIN, M.M. (1970): Marine and estuarine fishes of the northeast part of Bay of Bengal. *Scientific Researches* 7 (1): 26-55.
- KHAN, F.H. (1964): Geology of St. Martin's Island. GSB, Vol-10, Part 2-B of the Geological Survey of Pakistan.
- KHAN, MOHAMMAD A.R. (1982): Wildlife of Bangladesh-a checklist. Dhaka University, Bangladesh.
- KHAN, MOHAMMAD A.R. (1985): St. Martin's - a vanishing coral Island of Bangladesh. *Tigerpaper* 12(4): 6-12.
- KHAN, MOHAMMAD A.R. (1998): Probal Deep St. Martin's (In Bengali). National Conservation Strategy Implementation Project-1, Ministry of Environment and Forests, Govt. of Bangladesh, Dhaka.
- KHAN, ATAUR R., GYASUDDIN KHAN, ZUBEIR AHMED, GOLAM MUSTAFA, & M. NASIRUDDIN (1995): Economically Important Marine Fishes and Shell Fishes of Bangladesh. Marine Branch, Directorate of Fisheries, Govt. of Bangladesh, Dhaka.
- MADSEN, J.M. (1975): Aquarium Fishes in Color. Macmillan Publishing Co., Inc., New York.
- MASUDA, HAJIME, KUNIO AMAOKA, CHUICHI ARAGA, TERUYA UYENO & TETSUO YOSHINO (1984): The Fishes of the Japanese Archipelago. Tokai University Press, Tokyo, Japan.
- MISRA, K.S. (1959): An aid to the identification of common commercial fishes of India and Pakistan. *Rec. Indian Mus.* 57: 1-320.
- MUNRO, I.S.R. (1955): The Marine and Freshwater Fishes of Ceylon. 1982 Reprint Edition by Sony Reprints Agency, New Delhi, India.
- QUDDUS, MIAH M.A. & MOHAMMAD SHAFI (1983): Bangladesher Matshya Swampada (in Bengali). Bangla Academy, Dhaka, Bangladesh.
- RAHMAN, ATAUR A.R. (1989): Freshwater Fishes of Bangladesh (including estuarine species). Zoological Society of Bangladesh, Dhaka, Bangladesh.
- RANDALL, J.E., G.R. ALLEN, & W.F. SMITH-VANIZ (1978): Illustrated Identification Guide to Commercial Fishes. UNDP Regional Survey and Development Project. FAO/UNDP, Rome.
- SIRIMONTAPORN, PAIROJ (1984): Fishes of Songkhla Lake (Thailand). Japan International Cooperation Agency, Tokyo, Japan.